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# KINDERGARTEN VERSUS NON-KINDERGARTEN CHILDREN WITH RESPECT TO CERTAIN TRAITS OF CHARACTER

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This is a study of 380 grade children, in twelve grades, all of the Edgewood Public School. The method is one of comparison based on teachers' estimates of certain traits of character enumerated in Table I. There is no attempt to take into account native ability.

Conditions for the study are favorable for the following reasons: (1) Edgewood is a residence town having an unusually even class of children—all come from good homes, all have intelligent parents; (2) the kindergarten children are not from more favored homes than the non-kindergarten; (3) the kindergarten has been established for sixteen years; (4) the kindergarten instruction has been good. For seven years it has been directed by the present recently elected assistant supervisor of the Pittsburgh kindergartens.

To save space in the tables and to avoid repetition, K in this paper signifies kindergarten children, NK, non-kindergarten.

In obtaining the materials for the study, a form similar to Table I was given to each teacher. They were asked to write in the first column the names of their pupils and to grade them in each of the seventeen qualities as conscientiously as possible. No teacher knew that the study had anything to do with kindergartens. The forms were collected and afterward the kindergarten children were marked with a star. No prejudice on the part of a teacher with regard to kindergarten could affect the result as they had no idea of the purpose of the classification.

The report from each school was summarized as at the bottom of Table I. Under column 1, self-confidence, the average of the K is 1.9; of the NK is 2. The smaller number of course denotes

the higher standing. As only 1, 2, and 3 are used, the decimals are significant. In the last column the summaries of all the qualities are compared. In Table I the NK are surpassed by 0.17 of a point.

Table II tabulates the averages of all the schools after each was footed up as in Table I.

In Table III the differences in favor of either K or NK, as shown in Table II, are placed in columns. The sums of the variations of all the schools are given below each quality, and the difference of these sums is marked K if the difference is in favor of the kindergarten children, and NK if in favor of the non-kindergarten. The amount of variation may not be so significant, but the remarkable uniformity of results in every school could hardly be accidental. Since the sum of the differences is taken, in Table III the larger sum represents the greater degree of difference.

K children show greater self-confidence in every room but two. In moral attitude the NK surpass in seven rooms out of twelve and show a total difference of 0.33. In love of nature K surpass in every school but two. In ability to mix K surpass in every school but one. In friendliness K are ahead. Their advantage in interest is small but the NK are far ahead in attention. The K surpass in ability to think, in originality, in observation, in response to ideas, in response to directions, in cleanliness, in oral expression, and in ability to play. The NK surpass in but four points: namely, moral attitude, attention, manual ability, and orderliness.

The most remarkable differences in favor of K are in ability to mix, in originality, and in response to ideas. The difference is high in favor of K in self-confidence, love of nature, friendliness, observation, oral expression, and in ability to play.

The big advantage shown by these tables in favor of K, and the fact that the advantage is true in nearly all the schools, could hardly occur by chance. If, in a study of 380 children in twelve groups rated by different teachers independently, the results are so emphatically in favor of K, there is no reason to suppose that the same result would not be obtained in any group of children if they were of an even class. Native ability would not affect these tables, as they are based on averages and there is no more reason

TABLE I

GRADES: VERY HIGH, 1; MODERATE, 2; LOW, 3

1. Self-Confidence 2. Moral Attitude 3. Love of Nature	4. Ability to Mix 5. Friendliness 6. Interest	7. Attention 8. Ability to Think 9. Originality	10. Observation 11. Response to Ideas 12. Response to Directions	13. Cleanliness 14. Orderliness	16. Oral Expression 17. Ability to Play	Total												
Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
A. B.....	2	2	1	1	1	2	2	2	2	2	2	2	3	3	3	2	1	
B. E.....	1	1	2	2	1	1	1	1	2	1	1	3	2	1	1	2	2	
B. W.....	1	1	1	1	2	2	2	1	1	1	1	2	1	1	3	2	2	
etc.																		
etc.																		
21 K.....	1.9	1.57	1.43	1.71	1.33	2	1.9	2.05	1.95	1.57	1.9	1.57	1.81	1.52	1.95	2.09	1.57	1.75
9 NK.....	2	1.22	1.33	1.55	1.11	1.44	1.33	1.44	2.22	1.77	1.55	1.22	1.77	1.55	1.55	2.11	1.66	1.58

TABLE II

Grade	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Average
I (K.....)	1.75	1.47	1.75	1.66	1.16	1.66	1.78	1.87	2.06	1.75	2.03	1.66	1.69	1.41	1.44	1.66	1.37	1.71
I (NK.....)	1.80	1.40	1.80	2.00	1.40	1.40	1.60	1.60	2.20	1.80	2.20	1.40	1.40	1.00	1.00	1.00	1.60	1.56
II (K.....)	1.16	1.33	1.00	1.33	1.42	1.33	1.75	1.17	1.75	1.75	1.50	1.70	1.83	1.17	1.25	1.42	1.17	1.42
II (NK.....)	1.43	1.43	1.00	1.71	1.86	1.29	1.43	1.29	2.71	1.17	1.57	1.43	1.71	1.29	1.29	2.00	1.71	1.55
III (K.....)	1.50	1.20	1.00	1.40	1.20	1.50	2.00	1.80	2.40	1.80	1.70	2.00	1.70	1.40	1.50	2.10	1.20	1.62
III (NK.....)	1.27	1.55	1.00	1.75	1.82	1.64	2.00	1.73	2.18	1.73	2.00	2.00	1.64	1.64	1.91	2.18	1.55	1.74
IV (K.....)	1.75	1.79	1.39	1.86	1.64	1.61	1.75	1.70	1.82	1.82	1.39	1.39	1.79	1.25	1.79	1.82	1.29	1.64
IV (NK.....)	1.82	2.00	1.54	2.09	1.63	1.54	1.82	1.82	2.09	1.82	2.00	1.72	1.64	1.55	1.63	2.18	1.73	1.80
V (K.....)	1.68	1.23	1.50	1.36	1.36	1.32	1.82	1.45	1.59	1.32	1.36	1.50	1.77	1.00	1.82	1.77	1.41	1.49
V (NK.....)	2.00	1.17	1.50	1.58	1.50	1.58	1.83	2.00	1.75	1.50	1.67	1.84	1.67	1.00	1.50	1.92	1.50	1.62
VI (K.....)	1.78	1.56	1.44	1.50	1.06	1.72	2.17	2.22	2.00	1.33	1.39	2.06	1.89	1.39	2.11	2.00	1.07	1.69
VI (NK.....)	1.75	1.63	1.63	1.63	1.25	2.00	2.25	2.00	2.13	1.75	1.88	2.13	2.38	1.63	2.00	1.75	1.50	1.80
VII (K.....)	1.90	1.57	1.43	1.71	1.33	2.00	1.90	2.05	1.95	1.57	1.90	1.57	1.81	1.52	1.95	2.08	1.57	1.75
VII (NK.....)	2.00	1.22	1.33	1.55	1.11	1.44	1.33	1.44	2.22	1.77	1.55	1.22	1.77	1.55	1.55	2.11	1.06	1.58
VIII (K.....)	2.04	1.75	1.54	1.79	1.79	1.79	1.83	1.96	2.00	1.75	1.79	1.38	1.63	1.29	1.42	1.79	1.17	1.69
VIII (NK.....)	2.33	1.55	2.11	1.88	1.88	1.55	1.55	2.11	2.55	2.11	2.11	1.88	1.77	1.33	1.67	1.88	1.33	1.86
IX (K.....)	1.56	1.16	1.08	1.56	1.32	1.52	1.56	1.72	1.96	1.52	1.64	1.48	1.16	1.16	1.64	1.80	1.48	1.49
IX (NK.....)	2.00	1.13	1.13	1.75	1.13	1.75	1.75	2.00	2.13	1.75	2.00	2.00	1.38	1.00	1.38	2.38	1.63	1.66
X (K.....)	1.83	1.00	1.17	1.75	1.75	1.25	1.41	1.50	1.75	1.58	1.50	1.47	1.33	1.00	1.50	1.75	1.75	1.37
X (NK.....)	1.88	1.00	1.24	1.82	1.71	1.35	1.41	1.05	1.77	1.59	1.47	1.24	1.12	1.59	1.59	1.77	1.12	1.49
XI (K.....)	2.00	1.50	1.38	1.75	1.44	1.63	1.69	1.69	1.81	1.69	1.75	1.56	1.00	1.13	1.31	1.56	1.56	1.62
XI (NK.....)	2.24	1.29	1.71	2.05	1.71	1.76	1.57	1.81	2.05	1.86	1.81	1.43	1.62	1.13	1.20	2.05	1.71	1.71
XII (K.....)	1.68	2.00	1.84	1.42	1.37	1.79	1.95	1.84	1.74	1.63	1.84	1.89	2.00	1.26	1.79	1.58	1.32	1.69
XII (NK.....)	1.86	1.86	1.82	1.59	1.55	1.86	1.86	1.91	2.05	1.91	1.82	1.77	1.73	1.27	1.50	1.73	1.36	1.74

TABLE III

	SELF-CONFIDENCE		MORAL ATTITUDE		LOVE OF NATURE		ABILITY TO MIX		FRIENDLINESS		INTEREST		ATTENTION		ABILITY TO THINK		ORIGINALITY	
	K	NK	K	NK	K	NK	K	NK	K	NK	K	NK	N	NK	K	NK	K	NK
I.....	0.05	.....	.....	0.07	0.02	.....	0.34	.....	0.24	.....	.....	0.26	.....	0.18	.....	0.27	0.14	.....
I A.....	.27	.....	0.10	.....	0	.....	.38	.....	.44	.....	.....	.04	.....	.32	.....	.12	.96	.....
II B.....	.....	0.23	.35	.....	0	.....	.33	.....	.62	.....	0.14	.....	.....	.10	.....	.07	.....	0.22
II.....	.07	.....	.21	.....	.15	.....	.23	.....	.....	0.01	.....	.07	0.07	.....	.12	.....	.27	.....
III.....	.32	.....	.....	.06	0	.....	.....	.....	.14	.....	.26	.....	.....	.....	.55	.....	.16	.....
III A.....	.....	.03	.07	.....	.19	.....	.13	.....	.19	.....	.28	.....	.08	.....	.....	.22	.13	.....
IV.....	.10	.....	.....	.35	.....	0.10	.....	.....	.....	.22	.....	.56	.....	.57	.....	.61	.27	.....
V.....	.29	.....	.....	.20	.57	.....	.09	.....	.09	.....	.....	.24	.....	.28	.....	.15	.55	.....
VI B.....	.44	.....	.....	.03	.05	.....	.19	.....	.19	.....	.23	.....	.19	.....	.28	.....	.17	.....
VI.....	.05	.....	0	.....	.07	.....	.07	.....	.....	.14	.....	.10	.....	.....	.15	.....	.02	.....
VII.....	.24	.....	.....	.21	.33	.....	.30	.....	.27	.....	.13	.....	.12	.....	.12	.....	.24	.....
VIII.....	.18	.....	.....	.14	.....	.02	.17	.....	.18	.....	.07	.....	.09	.....	.07	.....	.31	.....
Summary.....	2.01	0.26	0.73	1.06	1.38	0.12	2.45	0.16	2.17	0.46	1.21	1.17	0.59	1.66	1.56	1.17	3.22	0.22
Difference.....	1.75K	.....	.....	0.33NK	1.26K	.....	2.29K	.....	1.71K	.....	0.04K	.....	.....	1.07NK	0.39K	.....	3.00K	.....

TABLE III—Continued

	OBSERVATION		RESPONSE TO IDEAS		RESPONSE TO DIRECTIONS		MANUAL ABILITY		CLEANLINESS		ORDERLINESS		ORAL EXPRESSION		ABILITY TO PLAY		SUMMARY	
	K	NK	K	NK	K	NK	K	NK	K	NK	K	NK	N	NK	K	NK	K	NK
I.....	0.05	.....	0.17	.....	.....	0.26	0.29	.....	.....	0.41	.....	0.44	.....	.....	0.23	.....	.....	0.15
I A.....	.....	0.58	.07	.....	.....	.32	.....	0.12	.....	0.04	.....	.....	0.58	.....	.54	.....	0.13	.....
II B.....	.....	.....	.....	.....	0	.....	.06	.....	.24	.....	.41	.....	.08	.....	.35	.....	.12	.....
II.....	0	.....	.61	.....	0.33	.....	.15	.....	.30	.....	.....	.16	.36	.....	.44	.....	.16	.....
III.....	.18	.....	.31	.....	.34	.....	.10	.....	0	.....	.32	.....	.15	.....	.09	.....	.13	.....
III A.....	.42	.....	.49	.....	.07	.....	.49	.....	.24	.....	.11	.....	.....	.25	.....	.17	.15	.....
IV.....	.20	.....	.....	0.35	.....	.35	.....	.04	.....	.....	.40	.....	.02	.....	.09	.....	.....	.17
V.....	.36	.....	.32	.....	.50	.....	.14	.....	.04	.....	.....	.25	.09	.....	.16	.....	.17	.....
VI B.....	.23	.....	.36	.....	.52	.....	.22	.....	.....	.16	.....	.26	.58	.....	.15	.....	.17	.....
VI.....	.01	.....	.....	.03	.....	.07	.....	.21	.....	.....	.09	.....	.02	.....	.....	.63	.12	.....
VII.....	.17	.....	.06	.....	.....	.13	.....	.38	.....	0	.....	.02	.49	.....	.15	.....	.09	.....
VIII.....	.28	.....	.....	.02	.....	.12	.....	.37	.....	.01	.....	.29	.15	.....	.04	.....	.05	.....
Summary.....	1.90	0.65	2.69	0.40	1.83	1.18	1.14	1.43	1.57	0.57	0.79	2.00	2.52	0.91	2.24	0.80	1.20	0.32
Difference.....	1.25K	.....	2.29K	.....	0.65K	.....	.....	0.29NK	1.00K	.....	1.21NK	.....	1.61K	.....	1.44K	.....	0.97K	.....

to assume more native ability among the 235 K than among the 145 NK. Neither would the fact that there are more K affect the averages.

In Table IV we have the averages of the same children in their school subjects given by the same teachers. The grades in one subject, arithmetic, are also given. This table shows a difference of 0.9 in average and 0.6 in arithmetic in favor of K.

TABLE IV

Grade	Average K Pupils	Average NK Pupils	Math. K Pupils	Math. NK Pupils	Number K Pupils	Number NK Pupils
	Per Cent	Per Cent	Per Cent	Per Cent		
I.....	82	81	82	83	32	5
I A.....	83	83	84	84	22	18
II.....	84	84	83	84	28	11
III.....	87	85	87	85	22	12
III A.....	79	78	68	70	18	8
IV.....	84	85	78	80	21	9
V.....	81	80	77	77	19	14
VI B.....	81	78	76	68	26	8
VI.....	86	85	86	85	12	17
VII.....	88	86	87	83	16	21
VIII.....	85	85	78	81	19	22
Totals..	83.6	82.7	80.6	80	235	145
Difference in favor of K	0.9	.....	0.6	.....	.....	.....

The school grades show no such variation in favor of K as the record of the characteristics. It will be seen that the following qualities would have great bearing on the lives of the individuals but would not be observable in their influence on school subjects: ability to mix, friendliness, cleanliness, ability to play. The following would affect school grades only indirectly and do not have the appreciation they should in school work: self-confidence, moral attitude, love of nature, originality, observation. The qualities in which the K excel that would be expected to affect school grades are interest, ability to think, response to ideas, response to directions, and oral expression.

The study shows a decided advantage for K in qualities which make for richer, larger living. If such qualities as love of nature,

TABLE V

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Av.
Grade III, 1914 { <sub>22</sub> K	1.68	1.23	1.50	1.36	1.36	1.32	1.82	1.45	1.59	1.32	1.36	1.50	1.77	1.00	1.82	1.77	1.41	1.49
Grade III, 1915 { <sub>18</sub> K	2.00	1.17	1.50	1.58	1.50	1.58	1.83	2.00	1.79	1.50	1.67	1.84	1.67	1.00	1.50	1.92	1.50	1.62
Grade VII, 1914 { <sub>16</sub> K	1.61	1.11	1.28	1.11	1.17	1.22	1.55	1.44	1.50	1.44	1.33	1.44	1.50	1.00	1.72	1.67	1.17	1.37
Grade VII, 1915 { <sub>21</sub> NK	1.55	1.00	1.18	1.18	1.18	1.27	1.73	1.55	1.45	1.36	1.36	1.36	1.45	1.00	1.27	1.73	1.27	1.35
Grade VII, 1914 { <sub>16</sub> K	2.00	1.50	1.38	1.75	1.44	1.63	1.69	1.69	1.81	1.69	1.75	1.56	2.00	1.13	1.31	1.50	1.56	1.62
Grade VII, 1915 { <sub>17</sub> K	2.24	1.29	1.71	2.05	1.71	1.76	1.57	1.81	2.05	1.86	1.81	1.43	1.62	1.13	1.29	2.05	1.71	1.71
Grade VII, 1915 { <sub>15</sub> NK	1.76	1.35	1.59	1.88	1.41	1.59	1.76	1.76	1.82	1.59	1.65	1.59	1.53	1.12	1.35	1.47	1.76	1.59
Grade VII, 1915 { <sub>15</sub> NK	1.93	1.40	2.13	1.80	1.60	1.80	1.87	1.80	1.73	1.73	1.80	1.33	1.53	1.06	1.40	2.00	1.73	1.68



sociability, originality, observation, response to ideas, oral expression, ability to think, and ability to play have no significance in our grade schools, our curricula and bases of measurement should be readjusted. The grade schools are evidently not close enough to vital experiences of life.

The NK show an advantage in manual ability, in orderliness, in moral attitude, and in attention, all of which have been claimed as especial aims of the kindergarten. If in these respects improvement is needed, I am sure the kindergarteners would be the first to seek means to arrive at it.

#### EXPLANATION OF TABLE V

To check up the results of this work it seemed desirable to repeat the judgments at a later date. It so happened that a year later two of the teachers were teaching the same groups as in 1914, when the study was first tabulated. These were asked to repeat the process, leaving out new children not considered before. The teachers reported that their judgments would differ considerably because of their better knowledge of the children. There is some variation, too, because the groups are not identical, some having moved away.

In Grade III the judgment is reversed in four qualities: self-confidence, originality, observation, and response to directions. Even the average is reversed, although NK surpass K by only 0.02 of a point. It will be observed that all of the reversals were changed by only a small decimal of a point. In thirteen qualities the conclusion is the same as that reached in 1914.

In Grade VII there are reversals of five qualities: moral attitude, ability to mix, originality, orderliness, and manual ability, but the averages vary in the same order and by exactly the same difference, 0.09.